

Patent Claims

1. A quartz glass cylinder for producing an optical component, comprising an inner bore which is mechanically treated to a final dimension and provided with an etched structure due to an etching treatment following mechanical treatment,
5 characterized in that the etched structure comprises cracks having a depth of not more than 2.0 mm and a width of not more than 100 μm .
2. The quartz glass cylinder according to claim 1, characterized in that the etched structure comprises cracks having a depth of not more than 1.0 mm and a
10 width of not more than 50 μm .
3. The quartz glass cylinder according to claim 1, characterized in that the etched structure comprises cracks having a depth of not more than 0.5 mm and a width of not more than 20 μm .
4. The quartz glass cylinder according to any one of the preceding claims,
15 characterized in that the etched structure comprises cracks having a depth of at least 30 μm and a width of at least 5 μm .
5. The quartz glass cylinder according to any one of the preceding claims, characterized by an outer diameter of at least 150 mm.
6. A method for producing a quartz glass cylinder comprising an inner bore,
20 according to any one of claims 1 to 5, in that the inner bore of the quartz glass cylinder is mechanically treated to a final dimension and subsequently subjected to an etching treatment, characterized in that the mechanical treatment comprises a plurality of subsequent removal processes with a successively smaller removal depth, the inner bore comprising subsurface
25 cracks of a depth of not more than 2 mm after the last removal process, and that the inner bore is subsequently subjected to an etching treatment such that an etching removal with a depth of not more than 50 μm is achieved.

7. The method according to claim 6, characterized in that the etching treatment yields an etching removal with a depth of not more than 25 μm .
8. The method according to claim 6, characterized in that the etching treatment yields an etching removal with a depth of not more than 10 μm .
- 5 9. The method according to any one of claims 6 to 8, characterized in that the etching treatment yields an etching removal with a depth of at least 2.5 μm .
10. The method according to any one of claims 6 to 9, characterized in that the etching treatment includes a first etching step in an etching solution containing hydrofluoric acid, and a second etching step in an etching solution containing
10 nitric acid.
11. The method according to any one of claims 6 to 10, characterized in that the etching treatment is carried out at a mean etching rate of not more than 3 $\mu\text{m}/\text{min}$.
12. The method according to claim 11, characterized in that the mean etching rate
15 is not more than 1 $\mu\text{m}/\text{min}$.
13. The method according to claim 11, characterized in that the mean etching rate is not more than 0.1 $\mu\text{m}/\text{min}$.
14. Use of a quartz glass cylinder according to any one of the preceding claims 1 to 5 for producing a preform for an optical fiber in an RIC method by collapsing
20 the cylinder onto a core rod and by simultaneously elongating said cylinder with formation of the preform.
15. Use of a quartz glass cylinder according to any one of the preceding claims 1 to 5 for producing an optical fiber in an RIC-ODD method by collapsing the cylinder onto a core rod and by simultaneously elongating said cylinder with
25 formation of the fiber.